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**PRELIMINARY ASSESSMENT/
VISUAL SITE INSPECTION**

**AKZO CHEMICALS, INC.
McCOOK, ILLINOIS**

ILD 057 833 642

FINAL REPORT

Prepared for

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460**

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EPA Region	:	5
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EXECUTIVE SUMMARY

B&V Waste Science & Technology, Corp. (BVWST), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the Akzo Chemicals, Inc. facility in McCook, Illinois. This report summarizes the results of the PA/VSI and evaluates the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified.

The Akzo facility produces amines, amine salts, quaternary ammonium salts, amineoxides, amides, esters, and amphoteric compounds from animal fatty acids and amines. The facility occupies 26.3 acre and employees approximately 110 people. The facility has operated at its current location since 1949. The facility generates three special wastes; salt cakes, distillation bottoms, and composite solids. The salt cakes and composite solids are both managed in 20 cubic yard dumpsters. The distillation bottoms are stored in drums on a gravel pad. The facility also produces a small amount of waste lubrication and hydraulic oil. The oil is collected in a drum behind the facilities machine shop. When a drum fills it is stored on gravel pad onsite. The facility generates waste water contaminated with fats, oils and greases. The water is washdown, runoff and spills from production, packaging and shipping areas. The water collects in catch basins and is treated in a waste water treatment plant. The facility generated approximately 13,000 pounds per year of waste mercury acetate (D009) prior to 1982. The mercury waste was generated during quality control analysis in their laboratory. Prior to the enactment of RCRA, the waste was rinsed down their drain to the sanitary sewer. After 1980, they began to store the waste inside a designated waste storage building. The facility replaced mercury acetate in their laboratory analysis in 1982 and removed all the hazardous waste from their facility. The facility currently does not generate or store a RCRA hazardous waste.

The PA/VSI identified the following eight SWMUs and no AOCs at the facility:

Solid Waste Management Units

1. Storage Building and Pads
2. Catch Basins
3. Salt Cake Drum Storage Area
4. Salt Cake Dumpster
5. Composite Solids Dumpster
6. Distillation Bottoms Storage Area
7. Waste Oil Drum Storage Area
8. Waste Water Treatment Plant

There is a low potential for releases to the groundwater from all of the SWMUs. There is no history or evidence of releases from any of these SWMUs. Drinking water in the vicinity of the plant is obtained from Lake Michigan. The closest well is approximately 0.5 mil south of the facility. It was only used for industrial purposes; its current operational status is unknown.

Surface water runoff from the facility is toward the southeast into a ditch which surrounds the south and southeast side of the facility. There is a low potential for surface water and air releases from all of the SWMUs. There is a moderate potential for releases to onsite soils from the waste oil drum storage area (SWMU #7) because of the lack of secondary containment. However, there is no documented history of onsite soil contamination from this SWMU. There is a low potential for onsite soil releases from all other SWMUs. No evidence of releases from any of these SWMUs was noted. Workers would be the only likely receptors of onsite soil contamination. The entire facility is enclosed with a fence. There is only one entrance which is either guarded or locked all the time. The nearest residents to the facility are directly north across 47th Street. Sensitive environments in the vicinity of the facility include the Des Plaines River, several woods and parks which surround the river and the Brookfield Zoo.

There are no recommendations for monitoring or sampling at the facility.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. R05032 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5. B&V Waste Science & Technology Corp. (BVWST) was contracted by PRC to conduct the PA/VSI for the Akzo Chemicals, Inc. facility.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, waste water treatment units, and other units that EPA has generally exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading-unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release to the environment of hazardous waste or constituents has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where such a release in the future is judged to be a strong possibility.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility.
- Obtain information on the operational history of the facility.
- Obtain information on releases from any units at the facility.
- Identify data gaps and other informational needs to be filled during the VSI.

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA.
- Identify releases not discovered during the PA.
- Provide a specific description of the environmental setting.
- Provide information on release pathways and the potential for releases to each medium.
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases.

The VSI includes interviewing appropriate facility staff, inspecting the entire facility to identify all SWMUs and AOCs, photographing all SWMUs, identifying evidence of releases, initially identifying potential sampling locations, and obtaining all information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Akzo Chemicals, Inc. facility in McCook, Illinois. The PA was completed on August 7, 1991. BVWST gathered and reviewed information from Illinois Environmental Protection Agency (IEPA) and from EPA Region 5 RCRA files. The VSI was conducted on August 9, 1991. It included interviews with Akzo Chemicals, Inc. facility representatives and a walk-through inspection of the facility. Eight SWMUs and no AOCs were identified at the facility.

The VSI is summarized and 12 inspection photographs are included in Attachment A. Field notes from the VSI are included in Attachment B.

2.0 FACILITY DESCRIPTION

This section describes the facility's location, past and present operations (including waste management practices), waste generating processes, release history, regulatory history, environmental setting, and receptors.

2.1 FACILITY LOCATION

The Akzo Chemicals, Inc. facility is located at 8201 West 47th Street in the City of McCook, Cook County, Illinois; Township 38 North, Range 12 East, Section 11; latitude 41° 48' 25" and longitude 87° 49' 30" (Figure 1). The facility occupies 26.3 acres in a mixed residential and industrial area.

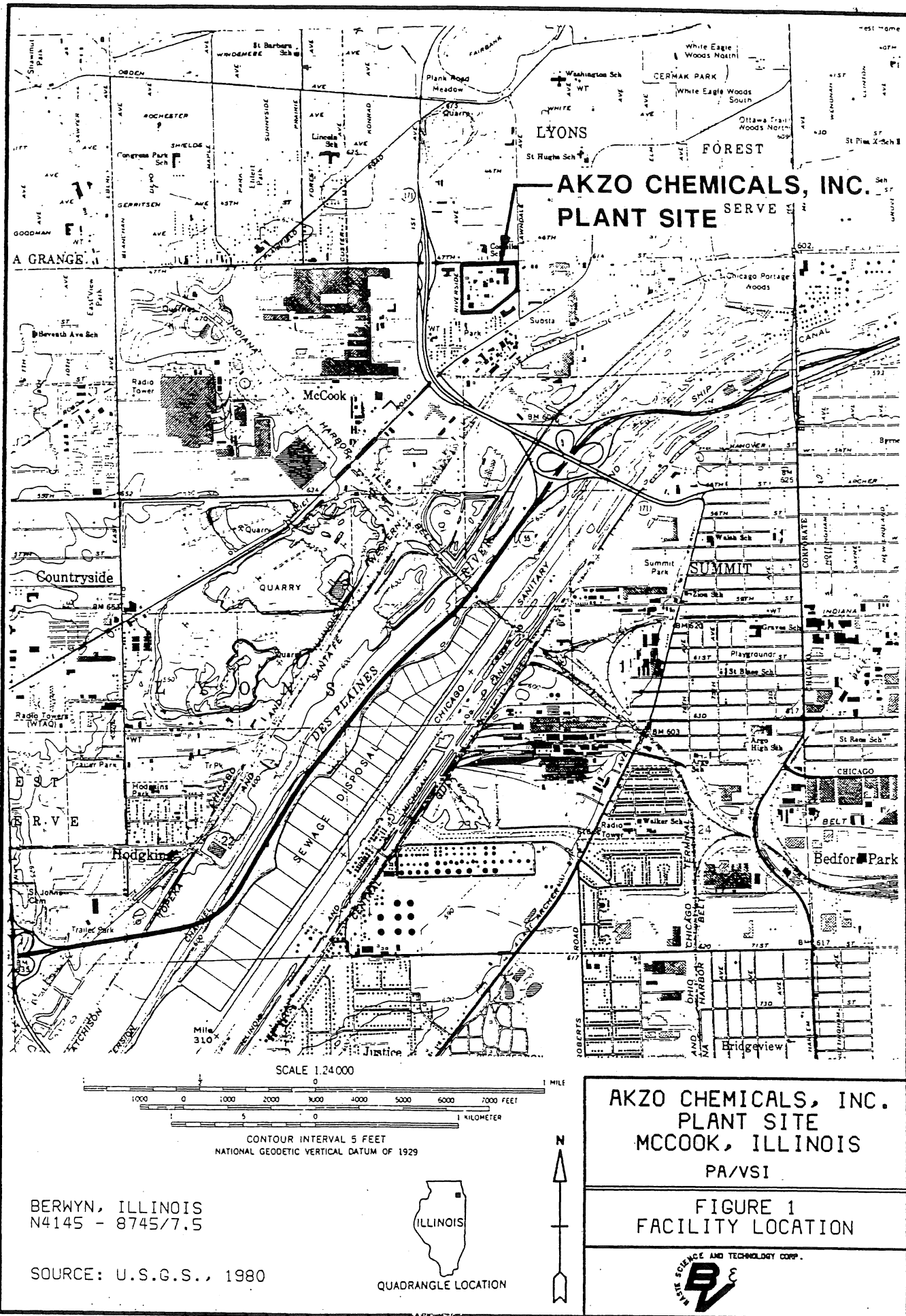
The Akzo facility is bordered on the north by 47th Street and a residential neighborhood of the City of Lyons; on the east by Lawndale Avenue and Watkins Motor Lines; on the south by a utility right of way and on the west by Riverside Avenue and the Akzo Research facility.

A security fence surrounds the Akzo facility. There is an entrance from Lawndale Avenue on the east which is staffed by a guard when the facility is operating, and locked when operations are closed. There is another entrance on the west side of the facility for railroad deliveries which is usually locked.

2.2 FACILITY OPERATIONS

Akzo Chemicals Inc. manufactures various fatty acids and their amine and amide derivatives. They receive animal fatty acids and amines as raw materials. They distill the fatty acids into pure species. Some of these purified fatty acids are sold as products; others are reacted to produce amides and amine. Various amine species are sold as products while others are further distilled. All the amides are distilled to remove impurities and long chain species. The products from this plant are used by other industries primarily as emulsifiers and surfactants. SWMUs at Akzo are listed in Table 1. A layout of the facility, including SWMU locations, is shown in Figure 2. Waste streams are listed in Table 2.

CAD DWG NO: C0001144
 DATE: 8-2-91 JOH
 PLOT SCALE: 1=1



47TH STREET

LAWDALE AVE

RIVERSIDE AVE

RESEARCH PARKING

BOILER ROOM

OFFICE

PLANT PARKING

TANK FARM

PAPER CHEM

DRUM STORAGE BLDG

PHOTO

DISTILLATION

PHOTO 5

FINISHED PRODUCTS

WAREHOUSE & SHIPPING

Arquad building

SALT CAKE DUMPSTER (SWMU 4)

SALT CAKE DRUM STORAGE (SWMU 3)

PAD 2 (SWMU 1)

PHOTO 2

PAD 1 (SWMU 1)

PHOTO 3

COMPOSITE SOLIDS DUMPSTER (SWMU 5)

TANK FARM

TANK FARM

PHOTO 9

WATER RESERVOIR

COOLING TOWERS

MAINTENANCE SHOP

PHOTO 12

WASTEWATER TREATMENT PLANT (SWMU 8)

PAD 3 (SWMU 1)

WIPED FILM EVAPORATOR

DISTILLATION BOTTOMS STORAGE (SWMU 6) PHOTO 10

WASTE OIL STORAGE (SWMU 7) PHOTO 11

☒ CATCH BASINS

■ SPECIAL WASTE HOLDING AREAS
1-SALT CAKE
2-COMPOSITE SOLIDS
3-AMIDE RESIDUE DRUMS

AKZO CHEMICALS, INC.
PLANT SITE
McCOOK, ILLINOIS
PA/VSI

FIGURE 1
FACILITY LAYOUT



NO SCALE

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMU)

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit	Status
1	Storage Building and Pads	Yes	Closed
2	Catch Basins	No	Active
3	Salt Cake Drum Storage Area	No	Active
4	Salt Cake Dumpster	No	Active
5	Composite Solids Dumpster	No	Active
6	Distillation Bottom Storage Area	No	Active
7	Waste Oil Drum Storage Area	No	Active
8	Waste Water Treatment Plant	No	Active

Note:

A RCRA hazardous waste management unit is one that currently requires or formerly required a RCRA Part A or Part B permit.

TABLE 2
SOLID WASTES

<u>Waste/EPA Waste Code</u>	<u>Source</u>	<u>Primary Management Unit(s)</u>
Salt Cake	Amine Production	3, 4
Waste Water Runoff Spills Water	Amine Production	2, 8
Composite Fatty Acids Amides and Amines	Overfill packaging/truck spillage during production, Lab QC analysis	5
Distillation Bottoms	Distillation of Fatty Acids	6
Waste Oil	Lubrication and Hydraulic Oil	7
Mercury Acetate (D009)*	Laboratory	1

Note:

* Akzo stopped generating this waste stream in 1982.

Akzo has operated at its current location since 1949 and currently employs about 110 people. The facility has a large distillation area where raw fatty acids and nitrogen derivatives are distilled into intermediates and products. The intermediates may go through one of numerous reactions before a final product is produced. The products this facility produces include amides, quaternary amines, amine oxides, ethoxylated amines, and amineacetates. The facility has a maintenance shop for equipment repair. The facility also has three large above ground tank farms. The tanks hold raw materials, intermediates, reagents, and products. Solid wastes are managed in containers, drums, and dumpsters at several locations throughout the facility. Waste waters are treated in a waste water treatment plant before discharge to the sanitary sewer.

2.3 WASTE GENERATING PROCESSES

No hazardous wastes are currently generated at the Akzo facility. The Quality Control (QC) laboratory produced 2-3 drums per month of mercury acetate (D009) waste from 1949 until June 2, 1982, when it was all transported offsite. From 1949 to 1980 the waste mercury acetate was discharged to the metropolitan sanitary district sewer. The mercury waste acetate was stored in drums in Building 33 (SWMU #1) from 1980 till June 2, 1982. Since then the QC Laboratory changed their analytical techniques so no mercury acetate is generated. They replaced the mercury acetate with iodine monochloride in acetic acid.

The facility currently generates three IEPA defined special wastes (Table 2). The first is the salt cakes. Approximately 20 cubic yards are generated every 2 to 3 months during purification of quaternary amine. The salt cake contains table salt (NaCl) and some wasted amines. It is collected in drums and stored in the collection area (SWMU #3). It is then dumped in a dedicated salt cake dumpster (SWMU #4). The dumpster is hauled to Land and Lakes Landfill number 3 in Chicago, Illinois.

The facility produces another 20 cubic yards every 2 to 3 months of what they term composite solids, which are placed in a dumpster for disposal (SWMU #5). The solids consist of quality control analysis waste, collected in a small satellite accumulation container, wasted product, overfill of packaging/truck spillage, other spills not diverted to the catch basins, often including gravel from the yard. The accumulation of the slick fatty material from spills is a safety concern at the plant. The spilled product can accumulate dirt and grime and gum up machinery. The dumpster is disposed of at Land and Lakes Landfill number 3 in Chicago, Illinois.

The third special waste is a distillation bottom from the production of amides in the wiped film evaporator. The distillation bottom contains a mix of long chain fatty acids and amides, which have no product value. The bottom is collected warm from the distillation column in drums. It cools to a solid and

is stored on the distillation bottoms storage pad (SWMU #6) until taken offsite to Beecher Sexton Landfill on Goodenow Road in Beecher, Illinois.

A small amount of waste lubrication and hydraulic oil is generated by the machinery on the facility. It is collected in a drum behind the machine shop. When full, the drum is placed on the waste oil drum storage pad (SWMU #7) until taken offsite to another Akzo facility for fuel blending.

Production water and surface water runoff from the production, packaging, and shipping areas are collected by the drainage system. Both collect in catch basins (SWMU #2) located throughout the facility. The fat material separates from the water and rises to the top of the basin. It is scraped from the top of the basin and hauled to another Akzo facility approximately once a week for fuel blending. The water goes to the waste water treatment plant (WWTP) (SWMU #8) where aerobic degradation of the organic material occurs.

The effluent is released to the municipal sanitary sewer. None of the facility's sanitary sewage is processed by the WWTP. The top of the basin is capped with sheet metal for odor control. The fumes are vented through a water fume scrubber before being released. Some of the water from the scrubber is released to the sanitary sewer while the rest is returned to the headworks of the plant.

2.4 REGULATORY HISTORY

Akzo Chemicals Inc. currently does not routinely generate RCRA hazardous waste. The facility maintains that no hazardous waste has been on site since June 1982. No evidence of hazardous waste was seen during this inspection.

The facility submitted its first RCRA Part A application as a TSD and Generator in August 1980 (EPA, 1980). This application listed process codes for container storage (S01) of 13,000 pounds per year, D009, as well as D001, U002, U003, U009, U103, U115, U154, U122, U171, U147, and P100 wastes. In March 1981 this list was reduced to only D009; the other materials are all raw materials (EPA, 1980).

On August 7, 1985 IEPA approved a closure plan for building 33 and the three drum storage pads (SWMU #1). The plan was implemented during 1985 and 1986. Closure of the storage areas was approved January 1987 by IEPA (IEPA, 1987).

The facility has an air permit from IEPA for a particulate bagging devise (IEPA, 1983). During packaging of flaked fatty acids, fatty amines and fatty amides, some of the flakes escape to the air. The bag is used to collect the flakes. They are then returned to the product when the bag is cleaned. The facility also has an operating permit for their waste water treatment plant.

2.5 RELEASE HISTORY

On July 2, 1990 Akzo reported a spill of 2,300 pounds of sulfuric acid on their facility (Akzo 1990). The spill was the result of a small hole in the weld of the discharge line in a sulfuric acid storage tank. The facility immediately plugged the hole and began to neutralize the acid with soda ash. The area of the spill was dug up and neutralized onsite. The neutralization was done with soda ash. The soil was used as fill and spread on various areas of the facility.

No other spills have been reported on the Akzo facility.

2.6 ENVIRONMENTAL SETTING

2.6.1 Climate

The climate of Illinois is humid continental type. The annual average daily maximum temperature is 58.7° F. The average daily minimum temperature is 39.7° F. The average annual precipitation is 33.3 inches. The greatest twenty-four hour rainfall was 9.35 inches in August 1987. The average snowfall is 38.2 inches (NWB, 1991). The prevailing wind is from the west in the winter, from the west and south-southwest in the spring, from the southwest in the summer, and from the south-southwest in the fall (Ruffner and Bair, 1977). The average wind speed is 10.3 mph.

2.6.2 Flood Plain and Surface Water

Surface water drainage in the area of the Akzo facility is to the southeast to the Des Plaines River, approximately 3300 feet away. Surface water from the plant production areas drains into the catch basins and through the waste water treatment plant to the sanitary sewer.

The Akzo facilities lies above the 500 year flood plain. (FEMA, 1991).

2.6.3 Geology and Soils

Much of Cook county has not been mapped at a detailed level by the U.S. Department of Agriculture (USDA, 1979) because of urban land use. However, the report supplies a regional soil map that classifies the near-surface soil near Akzo Chemicals Inc. as level and gently sloping, poorly drained loamy or silty subsoil resulting in bottom lands and terraces.

Geology at the site is expected to be comprised of an unknown thickness of glacial deposits (lacustrine clay, till, and outwash) over Paleozoic sedimentary rock units. No site-specific information on the stratigraphy is presently available. However, a detailed statewide study by Berg and Kempton provides regional three-

dimensional mapping of geologic materials to a depth of 50 feet (Berg and Kempton, 1988). Their map suggests a discontinuous alluvium less than 20 feet thick, over a silty clayey till of less than 20 feet. The bedrock surface is expected to be between 20 and 50 feet below the surface. The bedrock is expected to be Silurian and Devonian rock, mainly dolomites.

2.6.4 Groundwater

Groundwater is obtained from four major aquifer systems in northeastern Illinois -- the glacial drift system, the shallow bedrock system, and two deep bedrock systems. They are distinguished by their hydrologic properties and recharge source areas (Hughes et al., 1966). In central Cook County the glacial drift is thin and sand and gravel deposits are correspondingly thin or are absent. Virtually all wells drilled will have to penetrate bedrock for groundwater supplies. (Bergstrom et al., 1955).

The shallow bedrock aquifer system in northeastern Illinois underlies the glacial drift system and is mainly comprised of the Silurian dolomite formations. The upper boundary of this system is the bedrock-drift contact, and the lower boundary is the middle Ordovician age Galena-Platteville Dolomite. Water from this aquifer is obtained from fractures and solution openings in the Silurian dolomite beds (Hughes et al., 1966). The facility lies in an area where dolomite lies directly below the glacial drift which yields groundwater through open crevices and channels (Bergstrom et al., 1955). The shallow bedrock aquifer system is recharged locally from precipitation (Hughes et al., 1968).

The deep bedrock aquifer systems include the Cambrian-Ordovician aquifer system and the Mt. Simon aquifer system. The Cambrian-Ordovician aquifer system contains two major aquifers, the Glenwood-St. Peter aquifer and the Ironton-Galesville aquifer. The top of the Cambrian-Ordovician aquifer system is the Galena-Platteville Dolomite. The Glenwood-St. Peter aquifer is widely utilized where water requirements are less than 200 gallons per minute (gpm). This unit has a permeability between 9 and 15 gallons per day per square foot (gpd/sq. ft.). The Ironton-Galesville Sandstone aquifer has a permeability between 300 and 400 gpd/sq. ft. Recharge to the deep bedrock aquifer systems is mostly from west and north of the six county metropolitan area, where rocks crop out at the surface or lie immediately below the glacial drift. Minor recharge does occur through leakage downward through the shallow bedrock aquifer system (Hughes et al., 1966).

The Mt. Simon aquifer system is bounded above by the relatively impermeable shales and siltstones of the upper and middle Eau Claire Formation and below by the crystalline pre-Cambrian basement rock. The average permeability of the aquifer system is 16 gpd/sq. ft. (Hughes et al., 1966) and recharge is largely from the outcrop region of Cambrian rocks in central southern Wisconsin (Willman, 1971).

2.7 RECEPTORS

The Akzo Chemicals, Inc. facility occupies 26.3 acres in a mixed residential and industrial area. The nearest residential area is approximately 500 feet north of the facility. It lies in the village of McCook, which has a population of 303. McCook is a part of the Chicago metropolitan area (population 10 million).

Within a two-mile radius of the facility are the villages of Brookfield (population 19,395), Countryside (population 6,510), Forest View (population 743), LaGrange (population 15,690), Lyons (population 9,925), Riverside (population 8,758), and Summit (population 10,110) (Illinois Blue Book, 1987). There are approximately 20 schools in the vicinity.

The Akzo facility and the village of McCook are supplied with potable water from Lake Michigan by the City of Chicago. No wells are located on the facility property. The closest groundwater well lies approximately 1/2 mile from the facility at Universal Oil Products. It was used for industrial purposes. Whether the well is currently operational or not is unknown.

Sensitive environments within a two-mile radius of the facility include a one-mile stretch of the Salt Creek; a five-mile stretch of the Des Plaines River, the Chicago River, and the Chicago Sanitary and Ship Canal. Also located in the area are one to two square miles of forest preserves, including Brookfield Woods, Chicago Portage Woods, Ottawa Trail Woods, Plank Road Meadow, White Eagle Woods and Zoo Woods. Finally, the Brookfield Zoological Park is approximately 1.75 miles north of the facility. There are no wetlands greater than two acres in size or critical habitats within two miles of the facility.

The facility is secured by a chain-link fence. The main entrance is guarded during business operations and locked when the facility is closed. Visitors to the facility must sign in before being allowed to enter.

3.0 SOLID WASTE MANAGEMENT UNITS (SWMUs)

This section describes the eight SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of release, and BVWST observations.

SWMU 1

Storage Building and Pads

Unit Description: The RCRA Hazardous Waste Storage Building and Pads were designed to hold 235,000 gallons of material (Photos 1, 2, 3, and 4). The building was the only unit that actually ever stored hazardous waste. The building is approximately 20 feet by 30 feet in size. The floor is made of concrete.

Date if Startup: This unit began operations in 1980.

Date of Closure: Closure was completed on February 20, 1986. The facility maintains that all hazardous waste was removed from the site in 1982.

Wastes Managed: Mercury Acetate, (D009) was managed in this unit from 1980 until 1982.

Release Controls: The concrete floor is sloped toward a catch trough, which would prevent a release from the building.

History of Release: No releases from this SWMU have been documented.

Observations: The building is maintained in the event that unforeseen activities require storage capacity. No evidence of current storage activities or release from this unit was observed.

SWMU 2

Catch Basins

Unit Description: There are approximately six catch basins which are located so they can collect spills and surface water runoff from all production and packaging areas. Water is routed to the catch basins through in-ground concrete

drains. Water and fats separate in the basin. The water goes to the Waste Water Treatment Plant (SWMU #8). The fats are skimmed off the top of the basin about once a week (Photos 5 and 6). The fats are taken offsite to another Akzo facility for fuel blending. The catch basins are constructed of concrete and metal.

Date of Startup: These units have been in operation since 1949.

Date of Closure: This unit is currently active.

Wastes Managed: Surface water runoff, production spills, overfill of packaging or trucks. The water contains all the aliphatic nitrogen derivatives the facility produces.

Release Controls: There are no release controls for this unit.

History of Release: No releases from this SWMU have been documented.

Observations: The units all appeared to function well as water, fatty acid separators. No evidence of releases was observed.

SWMU 3 Salt Cake Drum Storage Area

Unit Description: The area is located on the loading dock of the arquad building (Photo 7). Approximately ten drums labeled salt cake were stored at the time of the inspection. The area is a covered concrete loading dock. It is approximately a 10 feet by 10 feet area.

Date of Startup: This unit began operation in 1953.

Date of Closure: This unit is currently active.

Wastes Managed: This unit manages salt cakes with filter paper; the salt is sodium chloride (NaCl, table salt), waste amines, and filter paper. These are classified as special wastes by IEPA.

Release Controls: The floors of the loading dock are concrete. The salt is stored in covered steel drums to prevent release.

History of Release: No releases from this SWMU have been documented.

Observations: This area appeared clean and compatible with drum storage. No evidence of releases was observed.

SWMU 4 Salt Cake Dumpster

Unit Description: This unit is a 20-cubic-yard, metal, uncovered dumpster dedicated for salt cake waste (Photo 8). It is located on a gravel lot south of the arquad building.

Date of Startup: This unit began operation in 1953.

Date of Closure: This unit is currently active.

Wastes Managed: This unit contains salt cakes, filter paper and waste quaternary amines from production of quaternary amine sodium chloride. The salt cake is classified a special waste by IEPA. The waste is disposed of offsite.

Release Controls: There are no release control for this unit.

History of Release: No releases from this SWMU have been documented.

Observations: No evidence of releases was observed.

SWMU 5 Composite Solids Dumpster

Unit Description: This unit is a 20 cubic yard, metal, uncovered dumpster dedicated for composite solid wastes (Photo 9). It is centrally located in the facility near the maintenance shop and the cooling towers.

Date of Startup: This unit began operation in 1949.

Date of Closure: This unit is currently active.

Wastes Managed:	This unit contains composite solids, composed of laboratory QC analysis wastes and bottles, spilled product clean-up, overfill of packaging or trucks, and other wasted product. This waste is classified by IEPA as a special waste. This waste is disposed of offsite.
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Release Controls: The dumpster located on an asphalt drive.

History of Release: No releases from this SWMU have been documented.

Observations: No evidence of releases were observed.

SWMU 6 Distillation Bottoms Storage Area

Unit Description: This unit is an uncovered gravel pad which has a capacity for approximately 80 drums (Photo 10). The pad is located on the south side of the facility near the waste water treatment plant (SWMU #8). This unit has an area of approximately 40 feet by 10 feet.

Date of Startup: This unit began operations in 1973.

Date of Closure: This unit is currently active.

Wastes Managed: This unit manages distillation bottoms generated during the purification of amides. The waste consists of long chain amides, fatty acids, and other impurities in a solid form. This waste is classified by IEPA as a special waste.

Release Controls: There is no release control mechanism for the gravel pad.

History of Release: No releases from this SWMU have been documented.

Observations: Approximately 50 closed drums were present on this SWMU. They all appeared to be in good condition. No evidence of releases was observed.

SWMU 7**Waste Oil Drum Storage Area**

Unit Description: This unit is an outdoor gravel pad which has the capacity for approximately 1 drum (Photo 11). It is located on the south side of the facility near the waste water treatment plant (SWMU #8) and the Distillation Bottoms Storage Area (SWMU #6).

Date of Startup: This unit began operation in 1949.

Date of Closure: This unit is currently active.

Wastes Managed: Waste lubrication and hydraulic oils are stored on this unit.

Release Controls: There is no release control mechanism for the pad.

History of Release: No releases from this SWMU have been documented.

Observations: One closed drum was observed on this SWMU and it appeared to be in good condition. No evidence of releases from this unit was observed.

SWMU 8**Waste Water Treatment Plant**

Unit Description: The waste water treatment plant is located outside on the south side of the facility (Photo 12). It consists of three main chambers. The first chamber is for influent waste water from the catch basins (SWMU #2). Waste water flow is regulated and nutrients are added in the influent chamber. The second chamber is the aeration basin. Biological oxidation of the organic constituents in the waste water occurs in the aeration basin. The facility originally built and used two aeration basins but they currently use only one basin at a time. The third chamber is a clarifier. Sludge, which consist of biological solids, is settled out of the waste water. Most of the sludge is recycled to the aeration basin. Some sludge is wasted to the plant effluent. The treated waste water effluent goes to the municipal sanitary district. The proportion of sludge wasted is based on the load in the aeration basin.

Date of Startup: This unit began operations in 1971. The unit's operating capacity was reduced in 1983 from two basins to one.

Date of Closure: Half of the capacity of this unit has been closed. Only one of two aeration basins is currently used at any time.

Wastes Managed: Surface runoff and washdown from production, shipping, and packaging areas containing water and mixed fats, oils and greases.

Release Controls: The facility is diked all the way around, runoff is returned to the headworks of the plant. The basin is covered with sheet metal to control odor releases. Gas is vented through a water scrubber before being released.

History of Release: No releases from this SWMU have been documented.

Observations: This SWMU was observed in operation without incident. No evidence of releases from this unit was observed.

4.0 AREAS OF CONCERN

No areas of concern on the Akzo facility were observed during this site inspection.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSII identified eight SWMUs and no AOCs at the Akzo Chemicals facility. Background information on the facility's location, operations, waste generating processes, release history, regulatory history, environmental setting, and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, release history, and observed condition, is discussed in Section 3.0. AOCs are discussed in Section 4.0. Following are BVWST's conclusions and recommendations for each SWMU. Table 3 identifies the SWMUs at the Akzo Chemicals facility and suggested further actions.

SWMU 1

Storage Building and Pads

Conclusions:

These units underwent formal closure proceeding in 1985 and 1986. Testing was done and no evidence of release was found. There is no potential for release from these units to groundwater, surface water, air and onsite soils.

Recommendations:

No further actions are suggested, because no wastes are stored on this unit and formal closure has already occurred.

SWMU 2

Catch Basins

Conclusions:

There is no potential for release to air because of the nature of the material. There is a low potential for release to the groundwater, surface water and onsite soils. The production, packaging and shipping areas are all sloped toward the catch basin drains and surrounded by berms.

Recommendations:

No further actions are suggested.

SWMU 3

Salt Cake Drum Storage Area

Conclusions:

There is a low potential for release to the air, onsite soils, groundwater or surface water. The salt cakes are solid and contain sodium chloride (NaCl, table salt) and quaternary amines. Any spills would be contained on the dock.

Recommendations:

No further actions are suggested.

SWMU 4

Salt Cake Dumpster

Conclusions:

There is no potential for release to the air because the material is a solid. There is a low potential for a release to occur to the surface water, onsite soils, and eventually to the groundwater. The potential for release is dependant on the integrity of the dumpster and the amount of precipitation which falls on it.

Recommendations:

No further actions are suggested. The material is primarily table salt and therefore poses no environmental threat. The quaternary ammonium compounds are also environmentally benign and pose no threat.

SWMU 5

Composite Solids Dumpster

Conclusions:

There is no potential for air release from this unit because of the nature of the material. There is a low potential for a release to occur to the surface water, and onsite soils. The potential for release is dependent on the integrity of the unit and the amount of precipitation which falls on it.

Recommendations:

No further actions are suggested.

SWMU 6

Distillation Bottoms Storage Area

Conclusions:

There is no potential for air release from this unit because the material is a solid. There is a low potential for a release to occur to the surface water, onsite soils or groundwater. The distillation bottom is a solid wax-like material which would be easily captured if spilled.

Recommendations:

No further actions are suggested.

SWMU 7

Waste Oil Drum Storage Area

Conclusions:

There is a moderate potential for a release to onsite soils. There is a low potential for a surface water, groundwater, and air release from this unit. There is no secondary containment for the storage area. There is rarely more than one drum of waste oil on the pad at any time.

Recommendations: Because of the small volume of oil handled on the storage area, no further actions are recommended.

SWMU 8

Waste Water Treatment Plant

Conclusions: There is no potential for an air release because of the odor recovery system. The potential for a release to onsite soils, groundwater, or surface water is low because of adequate secondary containment.

Recommendations: No further actions are suggested.

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TABLE 3
SWMU SUMMARY

<u>SWMU</u>	<u>Operational Dates</u>	<u>Evidence of Release</u>	<u>Suggested Further Action</u>
1. Storage Building & Pad	1980 - 1986	None	No further action
2. Catch Basin	1949 - present	None	No further action
3. Salt Cake Drum Storage Area	1953 - present	None	No further action
4. Salt Cake Dumpster	1953 - present	None	No further action
5. Composite Solid Dumpster	1949 - present	None	No further action
6. Distillation Bottoms Storage Area	1973 - present	None	No further action
7. Waste Oil Drum Storage Area	1949 - present	None	No further action
8. Waste Water Treatment Plant	1971 - present	None	No further action

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ATTACHMENT A

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

VISUAL SITE INSPECTION SUMMARY

Akzo Chemicals Inc.
McCook, Illinois
ILD057833642

Date: August 9, 1991

Facility Representatives: Katherine Rollins, Environmental Engineer
Walter Dion, Environmental Services Manager
Lawrence Keller, Senior Environmental Engineer
Richard Hanzlik, Environmental Engineer

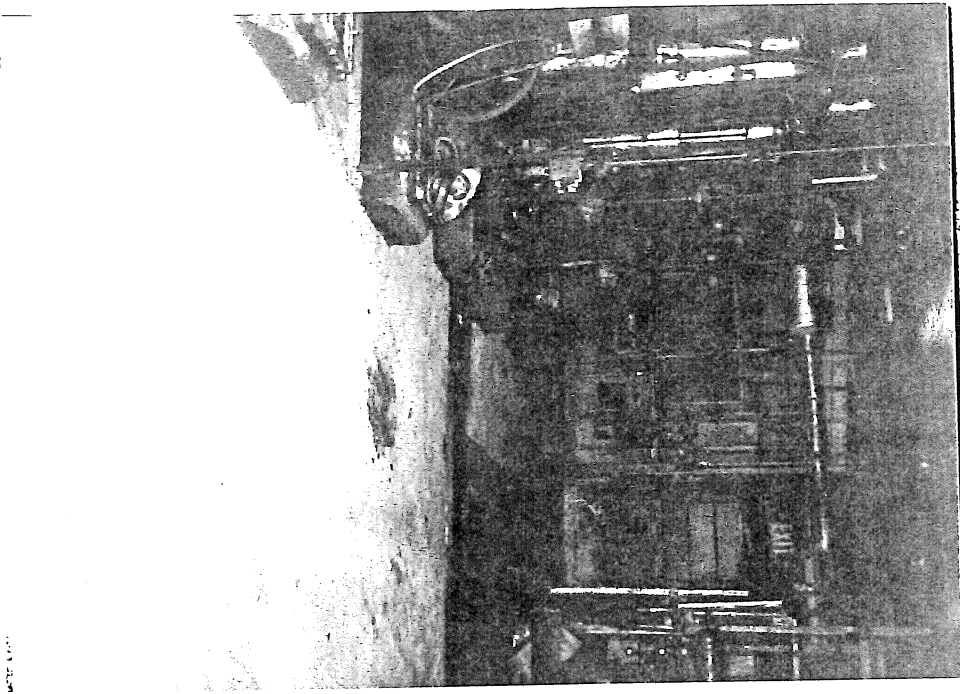
Inspection Team: Stephen Mehay, B&V Waste Science and Technology Corp.
Eric Turnquest, B&V Waste Science and Technology Corp.

Photographer: Eric Turnquest

Weather Conditions: Sunny and clear, temperature between 75°F and 80°F.

Summary of Activities: The visual site inspection began at 9:30 a.m. with an introductory meeting. Eric Turnquest began the meeting with a discussion of the purpose of the VSI and the agenda for the visit. The meeting continued with Walter Dion providing a description of facility operations and overview of the plant layout. The inspection team asked questions about waste management activities and the environmental setting.

The tour of the facility commenced after the introductory meeting at approximately 10:20 a.m. The tour generally consisted of all the production areas and waste management processes. At 11:45 a.m. , the tour was finished and a brief exit meeting began. During the exit meeting the inspection team asked some final questions and requested that certain documentation be sent. The VSI was completed at 12 p.m.



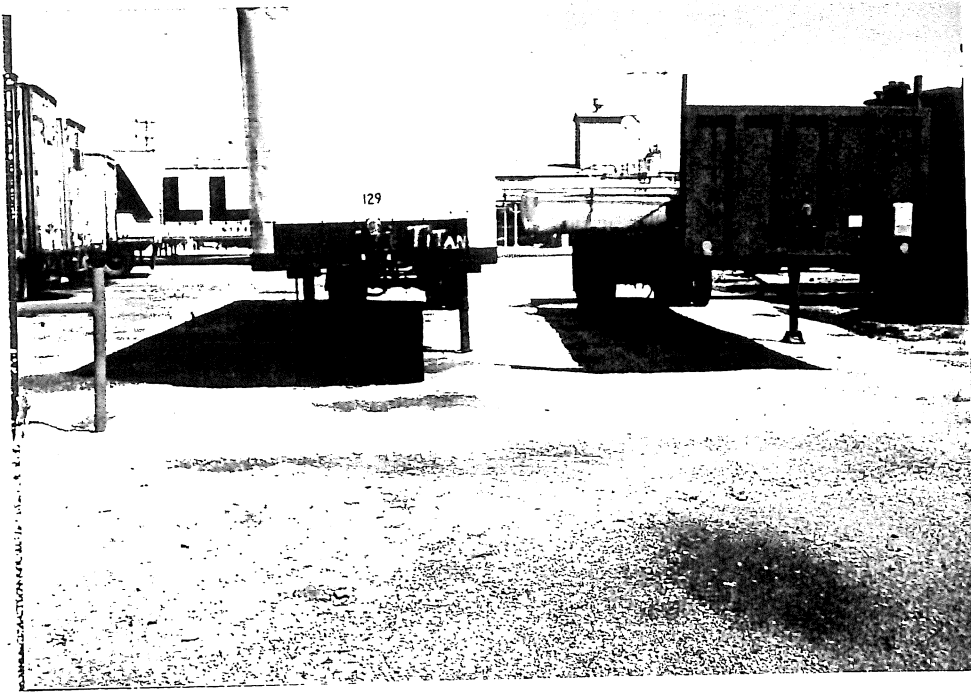
Photograph No. 1
 Orientation: South
 Description: Inside of Storage Building

Location: SWMU 1
 Date: 08/09/91



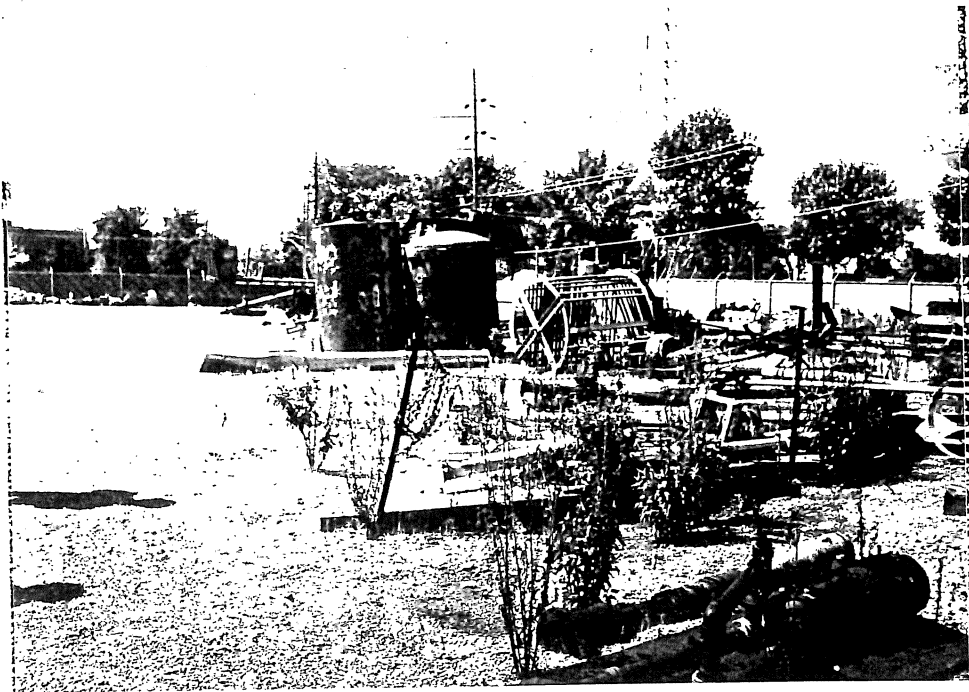
Photograph No. 2
 Orientation: East
 Description: Number 1 Storage Pad Area

Location: SWMU 1
 Date: 08/09/91



Photograph No. 3
 Orientation: North
 Description: Number 2 Storage Area

Location: SWMU 1
 Date: 08/09/91



Photograph No. 4
 Orientation: South
 Description: Number 3 Storage Pad Area

Location: SWMU 1
 Date: 08/09/91



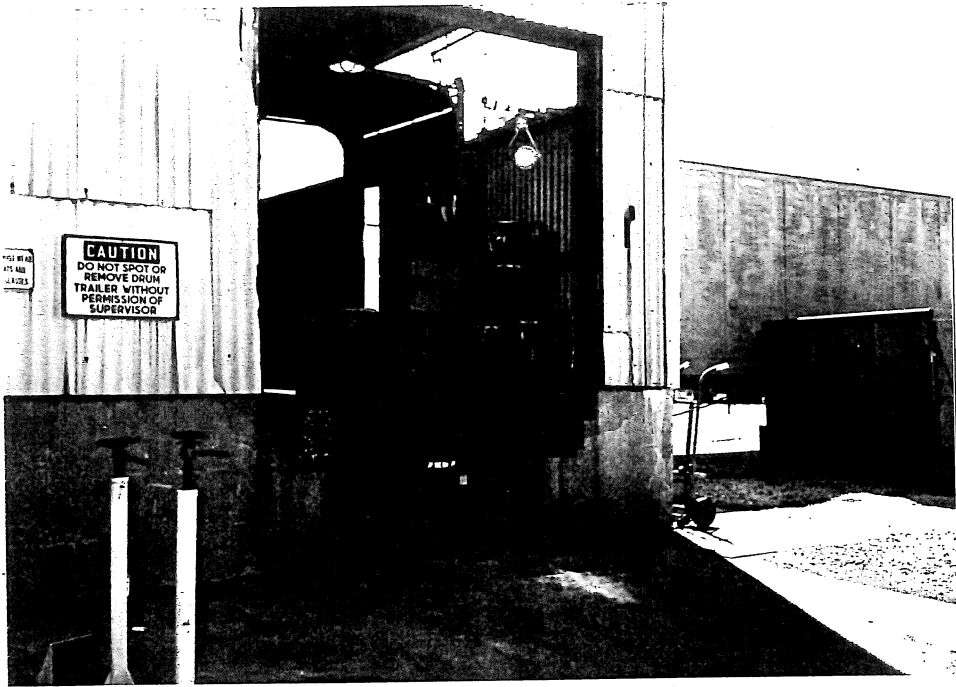
Photograph No. 5
 Orientation: West
 Description: Catch Basin

Location: SWMU 3
 Date: 08/09/91



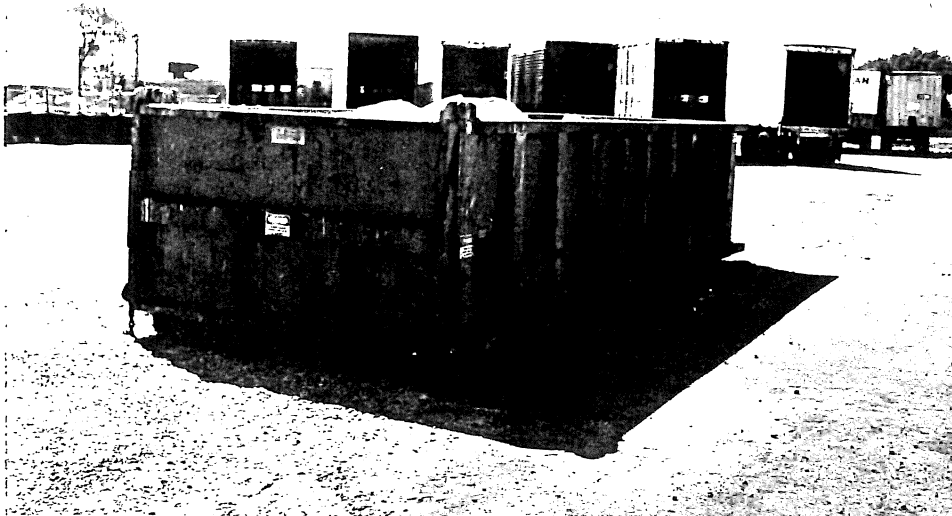
Photograph No. 6
 Orientation: East
 Description: Catch Basin

Location: SWMU 2
 Date: 08/09/91



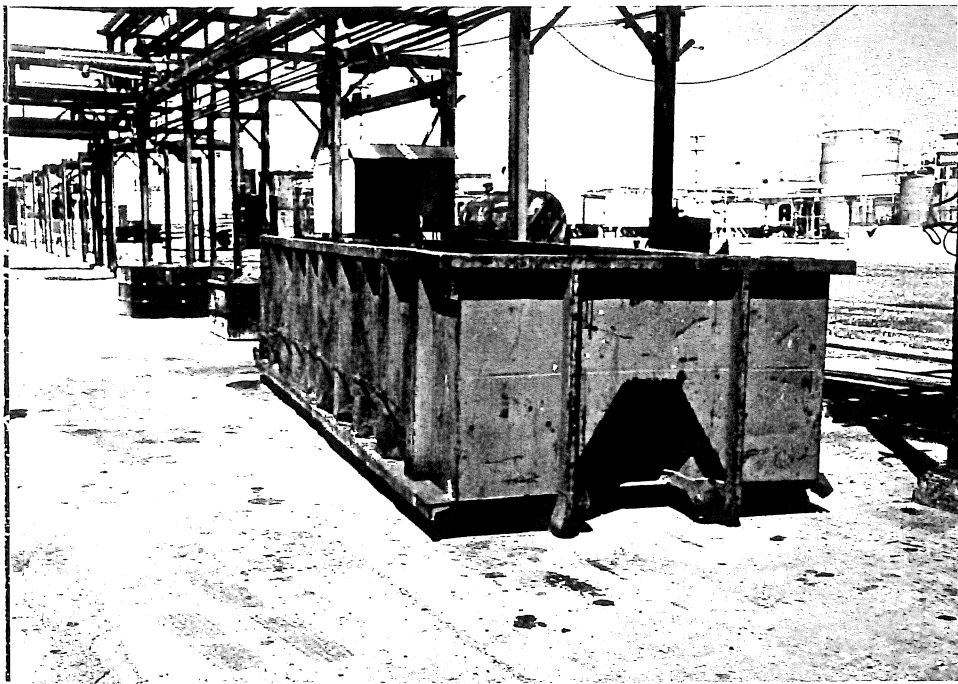
Photograph No. 7
 Orientation: Southeast
 Description: Salt Cake Drum Storage Area

Location: SWMU 3
 Date: 08/09/91



Photograph No. 8
 Orientation: South
 Description: Salt Cake Dumpster

Location: SWMU 4
 Date: 08/09/91



Photograph No. 9
 Orientation: East
 Description: Composite Solids Dumpster

Location: SWMU 5
 Date: 08/09/91



Photograph No. 10
 Orientation: South
 Description: Distillation Bottoms Storage Area

Location: SWMU 6
 Date: 08/09/91



Photograph No. 11
 Orientation: South
 Description: Waste Oil Drum Storage Area

Location: SWMU 7
 Date: 08/09/91



Photograph No. 12
 Orientation: South
 Description: Waste Water Treatment Plant

Location: SWMU 8
 Date: 08/09/91

ATTACHMENT B

VISUAL SITE INSPECTION FIELD NOTES

Alko Chemicals 455 70.0410 5M

Sunny Wind Eric Tomquest
7508 Steve McHenry

North Residential Lyons

West Alko Research / 171 / Large warehouse
EAS - Industrial

South - Residential - Mc Cook Park District
Bldg & Playground
Ballfield

Facility Operation

Animal & Veg. derived Fats & Acids - Suppl.
- Other

Raw Material Fatty Acids - Amides

F.A.s

- purify w/ distillation → sell
- React w/ Ammonia → Amides → Sell
- Ethoxylates w/ EtOH →
Ethylene oxide

Amine's distill - Received
10-20-30 Fatty Amides

→ Sale

→ Ethoxylates & Sulfate

→ 4° Amine in concentrates.

Amides - Ethoxyacet + distillate
 Amine Oxides
 3rd Amine + H₂O₂ → Amine Oxides
 Blends For Ready Coat series
 - Asphalt Emulsifiers
 - Packaging - Drums Bags Fiber drums
 1980 - stopped Making Amines
 3/12 Batch Hydride
 Fat splitter
 Nitric
 Batch Hydrogenation
 Crystallizer
 # employees - 110 - plant
 Gate - 24 hr guarded - weekends
 Locked - up
 Entrance
 All entrance in back
 S/M

No Haz waste
 3 Special Wastes
 ① NaCl Salt cake -
 Bicarb - 20 yr³/2-3 mo
 ② Composite Solids 20 yr³/2-3 mo
 Non Haz
 Product - spillage
 packaging
 Scrap
 ③ Distillation bottoms
 White Film evaporator
 Distillation unit
 Cools to solid in Drums
 Long chain FA - C18 - C22
 80 drums / 3 mo
 Oil - Waste Lub - Hydraulic
 etc...
 Burned -
 Quantity?
 S/M

8/27

Village McCook - City potable
- process water -

8/28

Waste water → Sanitary Sewer
→ 250 - 300,000 G.D.
Treatment
- Process water treatment
Aerobic -
- Trenched - runoff waters
Fed back through

Lab Waste - QC Lab

- Mercury Acetate -
June 2 1982 - All Shipped
Out

Runoff water - From All process
Areas → WWTP.

7/28

8/27

UST's - Gasoline - removed
isopropyl alcohol - Filled in ground

Photo 1 - Composit Solid storage
EAST.

Photo 2 - West - Drains - Production
- Calkin Basin → WWTP.

Photo 3 - East - Calkin Basin - Production
of Ammonia.

Photo 4 - SE - Salt Lake Filter Drums
- Storage Area
inside Bldg.

5 - S - Salt Lake Drumpster.

Product storage drums & package

6 waste oil - North - Machine shop
south side.

7 Bottoms Drum storage Area
South corner for

SM

8 - 161 waste oil - South
South boundary plant
next to photo 7.

9 - WWP basin - SW corner property
South - covered for odor
control vented through
water fume scrubber.

10 - #3 Final Reserve Red
storage waiting steel
over. SW corner
- South.

11 - #2 Red storage and more
used - West / North.
Side Road

12 - #1 - Red storage - East
- Used seldomly - empty drums

13 - Composite Solid Dumpster
EAST

MR

SM

~~Composite Solid Dumpster~~

Lab samples QC

- Over spill

Spillage

Cleanup activities

14 - Bldg 33 - Main Storage of

Mercury Acetate

South - - - Closed

Pod locked

Fat (product) from catch
basins - collected - placed in
Tank & Trucked offsite.

South - Residential - ~~thermo~~ Marshall steel
American

Melcock Park District

East - Truck Firm Industrial

West - Open Lot Research

SM